WHAT IS CLAIMED IS:

1.   A wireless base station which controls joining of a
plurality of wireless terminals to a wireless network, the
5   wireless base station comprising:
       a first memory unit configured to store a maximum
joining possible terminal number which indicates a maximum
number of the wireless terminals of each terminal type that
can join the wireless network simultaneously, and which is
10   set in advance for each one of a plurality of terminal
types that classify the wireless terminals;
       a second memory unit configured to store a currently
joining terminal number which indicates a number of the
wireless terminals of each terminal type that are currently
15   joining the wireless network, for each one of the plurality
of the terminal types;
       a reception unit configured to receive a request
message for requesting joining to the wireless network from
one wireless terminal of one terminal type;
20   a judgement unit configured to judge whether the
joining of the one wireless terminal which sent the request
message to the wireless network is permitted or not,
according to the maximum joining possible terminal number
stored in the first memory unit for the one terminal type
25   and the currently joining terminal number stored in the
second memory unit for the one terminal type, when the
request message is received; and
       a transmission unit configured to transmit a response
message indicating a judgement result obtained by the
30   judgement unit, to the one wireless terminal.

2.   The wireless base station of claim 1, wherein the
judgement unit permits the joining of the one wireless
terminal to the wireless network when the currently joining
35   terminal number is less than the maximum joining possible

terminal number, and rejects the joining of the one
wireless terminal to the wireless network when the
currently joining terminal number is equal to the maximum
joining possible terminal number.

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3.   The wireless base station of claim 1, wherein the
request message sent by the wireless terminal contains
values of one or a plurality of prescribed parameters, and
        the judgement unit rejects the joining of the one
10 wireless terminal to the wireless network when the
currently joining terminal number is equal to the maximum
joining possible terminal number, and judge whether the
joining of the one wireless terminal to the wireless
network is permitted or not, according to prescribed
15 judgement criteria based on the values of the prescribed
parameters contained in the request message when the
currently joining terminal number is less than the maximum
joining possible terminal number.

20 4.   The wireless base station of claim 3, wherein the
prescribed parameters include a minimum bit rate which
indicates a minimum bandwidth requested by the one wireless
terminal, and
        the judgement unit rejects the joining of the one
25 wireless terminal to the wireless network when a value of
the minimum bit rate contained in the request message
cannot be satisfied even if the currently joining terminal
number is less than the maximum joining possible terminal
number.

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5.   The wireless base station of claim 3, wherein the
prescribed parameters include a maximum tolerable jitter
with respect to a periodic transmission interval requested
by the one wireless terminal, and
35   the judgement unit rejects the joining of the one

wireless terminal to the wireless network when a value of
the maximum tolerable jitter contained in the request
message cannot be satisfied even if the currently joining
terminal number is less than the maximum joining possible
5   terminal number.

6.   The wireless base station of claim 3, wherein the
prescribed parameters include a maximum transmission
distance requested by the one wireless terminal, and
10   the judgement unit rejects the joining of the one
wireless terminal to the wireless network when a value of
the maximum transmission distance contained in the request
message cannot be satisfied even if the currently joining
terminal number is less than the maximum joining possible
15   terminal number.

7.   The wireless base station of claim 3, wherein the
judgement unit permits the joining of the one wireless
terminal to the wireless network only when the currently
20   joining terminal number is less than the maximum joining
possible terminal number, and all the values of the
prescribed parameters contained in the request message can
be satisfied.

25   8.   The wireless base station of claim 1, further
comprising a management unit configured to increase the
currently joining terminal number stored in the second
memory unit for the one terminal type by one, when the
judgement unit judges that the joining of the one wireless
30   terminal to the wireless network is permitted.

9.   The wireless base station of claim 8, wherein the
management unit decreases the currently joining terminal
stored in the second memory unit for a particular terminal
35   type by one, when a wireless terminal of the particular

terminal type that has been joining the wireless network leaves the wireless network.

10. The wireless base station of claim 1, wherein the plurality of the terminal types include a terminal type of AV data terminals.

11. A network joining control method at a wireless base station which controls joining of a plurality of wireless terminals to a wireless network, the network joining control method comprising:

storing a maximum joining possible terminal number which indicates a maximum number of the wireless terminals of each terminal type that can join the wireless network simultaneously, and which is set in advance for each one of a plurality of terminal types that classify the wireless terminals, into a first memory unit;

storing a currently joining terminal number which indicates a number of the wireless terminals of each terminal type that are currently joining the wireless network, for each one of the plurality of the terminal types, into a second memory unit;

receiving a request message for requesting joining to the wireless network from one wireless terminal of one terminal type;

judging whether the joining of the one wireless terminal which sent the request message to the wireless network is permitted or not, according to the maximum joining possible terminal number stored in the first memory unit for the one terminal type and the currently joining terminal number stored in the second memory unit for the one terminal type, when the request message is received; and

transmitting a response message indicating a judgement result obtained by the judgement step, to the one wireless

terminal.

12. A computer program product for causing a computer to function as a wireless base station which controls joining
5   of a plurality of wireless terminals to a wireless network, the computer program product comprising:
        a first computer program code for causing the computer to store a maximum joining possible terminal number which indicates a maximum number of the wireless terminals of
10 each terminal type that can join the wireless network simultaneously, and which is set in advance for each one of a plurality of terminal types that classify the wireless terminals, into a first memory unit;
        a second computer program code for causing the
15 computer to store a currently joining terminal number which indicates a number of the wireless terminals of each terminal type that are currently joining the wireless network, for each one of the plurality of the terminal types, into a second memory unit;
20   a third computer program code for causing the computer to receive a request message for requesting joining to the wireless network from one wireless terminal of one terminal type;
        a fourth computer program code for causing the
25 computer to judge whether the joining of the one wireless terminal which sent the request message to the wireless network is permitted or not, according to the maximum joining possible terminal number stored in the first memory unit for the one terminal type and the currently joining
30 terminal number stored in the second memory unit for the one terminal type, when the request message is received; and
        a fifth computer program code for causing the computer to transmit a response message indicating a judgement
35 result obtained by the judgement unit, to the one wireless

terminal.

13.   A wireless terminal that requests a wireless base
station to permit joining of the wireless terminal to a
5 wireless network, the wireless terminal comprising:
       a transmission unit configured to transmit a request
message to the wireless base station which manages the
wireless network, the request message containing an
indication that the joining to the wireless network is
10 requested, an information indicating a terminal type of the
wireless terminal, and all or a part of values of
prescribed parameters including a minimum bit rate which
indicates a minimum bandwidth requested by the wireless
terminal, a maximum tolerable jitter with respect to a
15 periodic transmission interval requested by the wireless
terminal, and a maximum transmission distance requested by
the wireless terminal; and
       a reception unit configured to receive a response
message indicating a permission of the joining, which is
20 transmitted by the wireless base station in response to the
request message, when it is judged that the joining is
permitted as a first joining condition based on an upper
limit number of terminals that can join the wireless
network simultaneously which is set in advance for the
25 terminal type contained in the request message is
satisfied, and a second joining condition based on the
values of the prescribed parameters contained in the
request message is satisfied.

30 14.   A communication control method at a wireless terminal
that requests a wireless base station to permit joining of
the wireless terminal to a wireless network, the
communication control method comprising:
       transmitting a request message to the wireless base
35 station which manages the wireless network, the request

message containing an indication that the joining to the
wireless network is requested, an information indicating a
terminal type of the wireless terminal, and all or a part
of values of prescribed parameters including a minimum bit
5   rate which indicates a minimum bandwidth requested by the
wireless terminal, a maximum tolerable jitter with respect
to a periodic transmission interval requested by the
wireless terminal, and a maximum transmission distance
requested by the wireless terminal; and
10   receiving a response message indicating a permission
of the joining, which is transmitted by the wireless base
station in response to the request message, when it is
judged that the joining is permitted as a first joining
condition based on an upper limit number of terminals that
15   can join the wireless network simultaneously which is set
in advance for the terminal type contained in the request
message is satisfied, and a second joining condition based
on the values of the prescribed parameters contained in the
request message is satisfied.
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15. A computer program product for causing a computer to
function as a wireless terminal that requests a wireless
base station to permit joining of the wireless terminal to
a wireless network, the computer program product
25   comprising:
        a first computer program code for causing the computer
to transmit a request message to the wireless base station
which manages the wireless network, the request message
containing an indication that the joining to the wireless
30   network is requested, an information indicating a terminal
type of the wireless terminal, and all or a part of values
of prescribed parameters including a minimum bit rate which
indicates a minimum bandwidth requested by the wireless
terminal, a maximum tolerable jitter with respect to a
35   periodic transmission interval requested by the wireless

terminal, and a maximum transmission distance requested by the wireless terminal; and

a second computer program code for causing the computer to receive a response message indicating a
5   permission of the joining, which is transmitted by the wireless base station in response to the request message, when it is judged that the joining is permitted as a first joining condition based on an upper limit number of terminals that can join the wireless network simultaneously
10   which is set in advance for the terminal type contained in the request message is satisfied, and a second joining condition based on the values of the prescribed parameters contained in the request message is satisfied.

15   16.   A transmitting device for transmitting contents for which a copyright protection is necessary, to one or more receiving devices through a network, the transmitting device comprising:

a contents supply unit configured to store or generate
20   the contents;

a communication processing unit configured to select a communication mode in case of carrying out communications with receiving devices;

a device authentication and key exchange processing
25   unit configured to determine a receiving device number indicating a number of receiving devices with which communications can be carried out, according to the communication mode selected by the communication processing unit, and carry out device authentication and key exchange
30   with receiving devices in number which is less than or equal to the receiving device number;

an encryption processing unit configured to encrypt the contents by using a key exchanged by the device authentication and key exchange processing unit; and
35   a network interface unit configured to transmit the

contents encrypted by the encryption processing unit, to
the receiving devices in number which is less than or equal
to the receiving device number.

5   17.   The transmitting device of claim 16, wherein the
communication processing unit selects the communication
mode from an infrastructure mode and an ad hoc mode as
defined by IEEE 802.11.

10   18.   The transmitting device of claim 17, wherein the
device authentication and key exchange processing unit
determines the receiving device number such that the
receiving device number used in a case where the
infrastructure mode is selected is larger than the
15   receiving device number used in a case where the ad hoc
mode is selected.

19.   The transmitting device of claim 16, further
comprising a revocation information registration unit
20   configured to register an identification information of
each receiving device to which a transmission of the
contents should be prohibited;
        wherein the device authentication and key exchange
processing unit does not carry out the device
25   authentication and key exchange with any receiving device
whose identification information is registered in the
revocation information registration unit.

20.   A transmitting device for transmitting contents for
30   which a copyright protection is necessary, to one or more
receiving devices through a wireless base station via a
network, the transmitting device comprising:
        a contents supply unit configured to store or generate
the contents;
35   an ID recording unit configured to record in advance a

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network ID of the wireless base station which is to be used in an authentication processing with the wireless base station;

a network ID authentication processing unit configured 5 to carry out authentication of the network ID with the wireless base station by using the network ID recorded in the ID recording unit;

a device authentication and key exchange processing unit configured to switch a receiving device number 10 indicating a number of receiving devices with which communications can be carried out, according to an authentication result obtained by the network ID authentication processing unit, and carry out device authentication and key exchange with receiving devices in 15 number which is less than or equal to the receiving device number;

an encryption processing unit configured to encrypt the contents by using a key exchanged by the device authentication and key exchange processing unit; and 20 a network interface unit configured to transmit the contents encrypted by the encryption processing unit, to the receiving devices in number which is less than or equal to the receiving device number.

25 21. The transmitting device of claim 20, wherein the device authentication and key exchange processing unit switches the receiving device number such that the receiving device number used in a case where the authentication by the network ID authentication processing 30 unit succeeds is larger than the receiving device number used in a case where the authentication fails.

22. The transmitting device of claim 20, further comprising a base station ID registration unit configured 35 to register at least one network ID of the wireless base

station, in such a state that a number of times for
changing once registered network ID is limited to be less
than or equal to a prescribed number of times;
     wherein the network ID authentication processing unit
5 carries out the authentication according to the at least
one network ID registered in the base station ID
registration unit.

     23. The transmitting device of claim 20, further
10 comprising a transmission prohibition unit configured to
prohibit a transmission of the contents when authentication
by at least one of the device authentication and key
exchange processing unit and the network ID authentication
processing unit fails;
15   wherein the network ID authentication processing unit
repeats the authentication of the network ID with the
wireless base station at a prescribed time interval, and
the transmission prohibition unit interrupts the
transmission of the contents whenever the authentication of
20 the network ID by the network ID authentication processing
unit fails.

     24. The transmitting device of claim 20, further
comprising a revocation information registration unit
25 configured to register an identification information of
each wireless base station to which a transmission of the
contents should be prohibited;
     wherein the network ID authentication processing unit
does not carry out the authentication with any wireless
30 base station whose identification information is registered
in the revocation information registration unit.

     25. A transmitting device for transmitting contents for
which a copyright protection is necessary, to one or more
35 receiving devices through a network, the transmitting

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device comprising:

a contents supply unit configured to store or generate the contents;

a communication processing unit configured to select a
5 communication mode in case of carrying out communications with receiving devices;

a device authentication and key exchange processing unit configured to determine a key to be used as either a key that permits a finite number of copies or a key that
10 prohibits copies, according to the communication mode selected by the communication processing unit, and carry out device authentication and key exchange for the copyright protection with receiving devices;

an encryption processing unit configured to encrypt
15 the contents by using a key exchanged by the device authentication and key exchange processing unit; and

a network interface unit configured to transmit the contents encrypted by the encryption processing unit, to the receiving devices.
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26. The transmitting device of claim 25, wherein the device authentication and key exchange processing unit limits a number of receiving devices with which communications are to be carried out by using a key that
25 permits a finite number of copies.

27. The transmitting device of claim 25, wherein the device authentication and key exchange processing unit selects a key that permits a finite number of copies in a
30 case where the authentication by the network ID authentication processing unit succeeds, and selects a key that prohibits copies in a case where the authentication by the network ID authentication processing unit fails.

35 28. The transmitting device of claim 25, further

comprising a revocation information registration unit configured to register an identification information of each receiving device to which a transmission of the contents should be prohibited;

5   wherein the device authentication and key exchange processing unit does not carry out the device authentication and key exchange with any receiving device whose identification information is registered in the revocation information registration unit.

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29. A transmitting device for transmitting contents for which a copyright protection is necessary, to one or more receiving devices through a wireless base station via a network, the transmitting device comprising:

15   a contents supply unit configured to store or generate the contents;

an ID recording unit configured to record in advance a network ID of the wireless base station which is to be used in an authentication processing with the wireless base

20 station;

a network ID authentication processing unit configured to carry out authentication of the network ID with the wireless base station by using the network ID recorded in the ID recording unit;

25   a device authentication and key exchange processing unit configured to determine a key to be used as either a key that permits a finite number of copies or a key that prohibits copies, according to an authentication result obtained by the network ID authentication processing unit,

30 and carry out device authentication and key exchange for the copyright protection with receiving devices;

an encryption processing unit configured to encrypt the contents by using a key exchanged by the device authentication and key exchange processing unit; and

35   a network interface unit configured to transmit the

contents encrypted by the encryption processing unit, to the receiving devices in number which is less than or equal to the receiving device number.

5 30. The transmitting device of claim 29, wherein the device authentication and key exchange processing unit limits a number of receiving devices with which communications are to be carried out by using a key that permits a finite number of copies.

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31. The transmitting device of claim 29, wherein the device authentication and key exchange processing unit selects a key that permits a finite number of copies in a case where the authentication by the network ID

15 authentication processing unit succeeds, and selects a key that prohibits copies in a case where the authentication by the network ID authentication processing unit fails.

32. The transmitting device of claim 29, further

20 comprising a revocation information registration unit configured to register an identification information of each wireless base station to which a transmission of the contents should be prohibited;

wherein the network ID authentication processing unit

25 does not carry out the authentication with any wireless base station whose identification information is registered in the revocation information registration unit.

33. A receiving device for receiving contents for which a

30 copyright protection is necessary, from a transmitting device via a network, the receiving device comprising:

a communication processing unit configured to select a communication mode in case of carrying out communications with the transmitting device;

35   a device authentication and key exchange processing

unit configured to exchange a key that permits a finite
number of copies or a key that prohibits copies with the
transmitting device, according to the communication mode
selected by the communication processing unit, and carry
5   out device authentication and key exchange for the
copyright protection with the transmitting device;
        a network interface unit configured to receive the
contents which are encrypted, from the transmitting device;
and

10   a decryption processing unit configured to decrypt the
contents received by the network interface unit, by using a
key exchanged by the device authentication and key exchange
processing unit.

15 34. A receiving device for receiving contents for which a
copyright protection is necessary, from a transmitting
device through a wireless base station via a network, the
receiving device comprising:
        an ID recording unit configured to record in advance a
20   network ID of the wireless base station which is to be used
in an authentication processing with the wireless base
station;
        a network ID authentication processing unit configured
to carry out authentication of the network ID with the
25   wireless base station by using the network ID recorded in
the ID recording unit;
        a device authentication and key exchange processing
unit configured to exchange a key that permits a finite
number of copies or a key that prohibits copies with the
30   transmitting device, according to an authentication result
obtained by the network ID authentication processing unit,
and carry out device authentication and key exchange for
the copyright protection with the transmitting device;
        a network interface unit configured to receive the
35   contents which are encrypted, from the transmitting device;

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and

a decryption processing unit configured to decrypt the contents received by the network interface unit, by using a key exchanged by the device authentication and key exchange
5 processing unit.

35. A wireless base station for receiving contents for which a copyright protection is necessary, from a transmitting device via a network, and transmitting
10 received contents to one or more receiving devices, the wireless base station comprising:

a first network ID authentication processing unit configured to carry out an authentication of a network ID with the transmitting device;
15 a second network ID authentication processing unit configured to carry out an authentication of a network ID with the receiving devices; and

a revocation information registration unit configured to register at least one of an identification information
20 of each transmitting device which should be prohibited to transmit the contents and an identification information of each receiving device which should be prohibited to receive the contents;

wherein the transmitting device and the receiving
25 devices switch a number of transmitting devices or receiving devices to carry out device authentication and key exchange or an encryption scheme, according to authentication results obtained by the first network ID authentication processing unit and the second network ID
30 authentication processing unit.

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